the designer placed a wall in the center of the heating chamber and connected the two halves of the chamber by ports in the lower portion of this wall. Nevertheless the bricks on the hearth were not sufficiently well burned. It therefore became necessary to add a supplementary waste gas flue with ports in the hearth of the heating chamber.

A very interesting type of chamber reverberatory furnace has been installed at the Lyswa works for the remelting of scrap and large broken castings. It was built by M. Onoufrowitch after an American design (Fig. 41). The rear portion of an ordinary reverberatory furnace has been replaced by a large chamber, *the waste gas flue having been left in its former place.*

Computations for this furnace may be made in the following manner: the consumption of coal is 0 kg 31 per second. Assuming that the air supply is 1.40 times the theoretical requirements of combustion, and that the temperature *t* is equal to 1300°, the volume of gas Qo = l m^3 82 per second and Qi3oo = 10 ni^3 48 per second. For a furnace width of 1 m 60, therefore, *hi3QQ*= 1 m 05.

That is, the normal thickness of the *layer of gas below the inverted weir* for this furnace is equal to 1050 mm and, for this furnace to work, the distance from the hearth to the top of the waste gas port should not exceed 1050 mm. Otherwise the hot gases would not touch the hearth of the furnace and it would not heat well. The vertical distance from the tapping hole to the top of the waste gas port actually is 1100 mm, which agrees very "well with the calculated distance. The charging door of this furnace is very large and high, but it. is hermetically closed when the furnace is in operation, and on this account it occasions no loss of the hot gases.

The volume of the heating chamber of the Onoufrowitch furnace is llm^3 00, of which 8 rn^3 70 are comprised in the chamber. By

reason of this, the gases remain in the heating chamber slightly longer than one second, and therefore the furnace gives good results.

A very interesting type of furnace is that used in the heating of steel plates. In this case the necessity of having the hot gases at the level of the hearth is still more absolute than in ordinary furnaces. In effect, the presence of air upon the hearth of the furnace causes considerable damage, as it oxidizes the iron and in this manner produces a quantity of surface defects. It is for this